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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/509,433	05/30/2000	ROBIN WALTER MILLS	MBM1420	9540
28213	7590	06/13/2007		
DLA PIPER US LLP 4365 EXECUTIVE DRIVE SUITE 1100 SAN DIEGO, CA 92121-2133			EXAMINER NEGRON, ISMAEL	
			ART UNIT 2885	PAPER NUMBER
			MAIL DATE 06/13/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 09/509,433	Applicant(s) MILLS ET AL.	
	Examiner Ismael Negron	Art Unit 2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 32-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>April 2, 2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Response to Amendment

2. Applicant's amendment filed on April 2, 2007 has been entered. Claim 32 has been amended. No claim has been cancelled, or added. Claims 32-38 are still pending in this application, with Claim 32 being independent.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 32-38 are rejected under 35 U.S.C. 102(b) as being anticipated by MASAMI et al. (U.S. Pat. 4,729,076).

4. MASAMI et al. discloses an illumination device having:

- **one or more light emitting diodes (as recited in Claim 32),**
Figure 4, reference number 1;
- **the light emitting diodes being for emitting radiation (as**
recited in Claim 32), inherent;
- **one or more heat pipes (as recited in Claim 32), column 2, lines**
30 and 31;
- **the light emitting diodes being thermally connected to the heat**
pipe (as recited in Claim 32), column 2, lines 25-34;
- **each of the light emitting diodes being proximate to one end of**
heat pipe (as recited in Claim 32), as evidenced by Figure 5;
- **a unitary thermal connector (as recited in Claim 32), Figure 4,**
reference number 2;
- **the unitary thermal connector directly connecting the light**
emitting diodes and the heat pipe (as recited in Claim 32), as
evidenced by Figure 4;
- **the heat pipe conducting heat away from the light emitting**
diodes (as recited in Claim 32), column 2, lines 25-34;
- **a fan or Peltier device proximate to the heat pipe (as recited in**
Claim 33), column 2, lines 32 and 33;
- **a heat sink (as recited in claims 34 and 35), Figure 4, reference**
number 4;

- **the heat sink being in thermal contact with the heat pipe (as recited in claims 34 and 35), column 2, lines 28-32;**
- **the heat pipe providing means for cooling the light emitting diodes such that the light emitting diodes are capable of being driven to produce more radiation than they would be capable of without the heat pipe (as recited in Claim 36), inherent;**
- **the light emitting diodes being a plurality of light emitting diodes (as recited in claims 37 and 38), as seen in Figure 4;**
- **the plurality of light emitting diodes being formed in one or more clusters (as recited in Claim 37), as seen in Figure 4; and**
- **the plurality of light emitting diodes being formed in one or more arrays (as recited in Claim 38), as seen in Figure 4.**

Response to Arguments

5. Applicant's arguments filed April 2, 2007 have been fully considered but they are not persuasive.

6. Regarding the Examiner's rejection of Claim 32 under 35 U.S.C. 102(b) as being anticipated by MASAMI et al. (U.S. Pat. 4,729,076), the applicant argues that the cited reference fails to disclose all the features of the claimed invention, specifically the one or more light emitting diodes being proximate one end of the one or more heat pipes, or

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the thermal connector connecting the one or more LED and the one or more heat pipes being a unitary thermal connector.

7. Regarding the Examiner's rejection of claims 33-38 under 35 U.S.C. 102(b) as being anticipated by MASAMI et al. (U.S. Pat. 4,729,076), the applicant present no arguments.

8. In response to applicant's arguments that MASAMI failed to disclose individually the one or more LED being proximate one end of the one or more heat pipes, the applicant is respectfully advised that while the claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. *In re American Academy of Science Tech Center*, 70 USPQ2d 1827 (Fed. Cir. May 13, 2004).

In this case, MASAMI et al. discloses a plurality of LED 1 mounted on a circuit board 2 disposed on a board 3, such board including a plurality of heat sink 4. MASAMI et al. further states that the heat generated by the LED 1 is led to the heat sink 4 so that heat can be efficiently dissipated from the surface of the heat sink 4. A plurality of heat pipes 12 are used for thermally connecting the board 3 to the heat sink 4 when not integrally made. The space between the circuit board 2 and the board 3 is filled with a resin filler 6 and an electrically insulating sheet 5. One end of the heat pipe 12 is coupled to the board 3 and electrically insulating sheet 5, the other end of the heat pipe

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12 being coupled to the heat sink 4 (as evidenced by Figure 5). The plurality of LED was considered to meet the "*proximate to an end of the heat pipe*" limitation as such plurality of LED 1 are indeed in close relationship (i.e. very near) with the heat pipe 12, as evidence by figures 4 and 5.

9. In response to applicant's arguments that MASAMI failed to disclose individually the thermal connector a unitary thermal connector, the applicant is advised that it has been held that the term "*integral*" is sufficiently broad to embrace construction means such as fastening and welding. *In re Hotte*, 177 USPQ 326, 328 (CCPA 1973).

In this case, as previously detailed, MASAMI et al. discloses a plurality of LED 1 mounted on a circuit board 2 disposed on a board 3, such board including a plurality of heat sink 4. MASAMI et al. further states that the heat generated by the LED 1 is led to the heat sink 4 so that heat can be efficiently dissipated from the surface of the heat sink 4. A plurality of heat pipes 12 are used for thermally connecting the board 3 to the heat sink 4 when not integrally made. The space between the circuit board 2 and the board 3 is filled with a resin filler 6 and an electrically insulating sheet 5. The combination of the circuit board 2, the resin filler 6 and the insulating sheet 5 were considered as meeting the claimed thermal connector limitations, as such elements thermally connect the LED 100 to the board 3. In addition, such thermal connector was considered to be specifically a unitary thermal connector as the circuit board 2, resin filler 6 and the insulating sheet 5 are made into a single unitary body by means of resin filler 6, as seen in Figure 4.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Negron whose telephone number is (571) 272-2376. The examiner can normally be reached on Monday-Friday from 9:00 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee, can be reached on (571) 272-7044. The facsimile machine number for the Art Group is (571) 273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications maybe obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, go to <http://pair-direct.uspto.gov>. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) toll-free at 866-217-9197.

/Ismael Negron/
Patent Examiner
AU 2885